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DEPARTMENT OF EDUCATION
FOR THE
UNITED STATES COMMISSION TO THE PARIS EXPOSITION OF 1900

MONOGRAPHS ON EDUCATION
IN THE
UNITED STATES

EDITED BY
NICHOLAS MURRAY BUTLER
Professor of Philosophy and Education in Columbia University, New York

6

THE AMERICAN UNIVERSITY

BY
EDWARD DELAVAN PERRY, PH. D.,
*Jay Professor of the Greek Language and Literature, Columbia University,
New York*

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Director
HOWARD J. ROGERS, Albany, N. Y.

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- 2 KINDERGARTEN EDUCATION — SUSAN E. BLOW, *Cazenovia, New York*
- 3 ELEMENTARY EDUCATION — WILLIAM T. HARRIS, *United States Commissioner of Education, Washington, D. C.*
- 4 SECONDARY EDUCATION — ELMER ELLSWORTH BROWN, *Professor of Education in the University of California, Berkeley, California*
- 5 THE AMERICAN COLLEGE — ANDREW FLEMING WEST, *Professor of Latin in Princeton University, Princeton, New Jersey*
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- 7 EDUCATION OF WOMEN — M. CAREY THOMAS, *President of Bryn Mawr College, Bryn Mawr, Pennsylvania*
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- 16 SUMMER SCHOOLS AND UNIVERSITY EXTENSION — HERBERT B. ADAMS, *Professor of American and Institutional History in the Johns Hopkins University, Baltimore, Maryland*
- 17 SCIENTIFIC SOCIETIES AND ASSOCIATIONS — JAMES MCKEEN CATTELL, *Professor of Psychology in Columbia University, New York*
- 18 EDUCATION OF THE NEGRO — BOOKER T. WASHINGTON, *Principal of the Tuskegee Institute, Tuskegee, Alabama*
- 19 EDUCATION OF THE INDIAN — WILLIAM N. HAILMANN, *Superintendent of Schools, Dayton, Ohio*

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THE AMERICAN UNIVERSITY

I INTRODUCTION. DO UNIVERSITIES OR THEIR EQUIVALENT EXIST IN THE UNITED STATES?

Professor Ladd of Yale university, in an essay originally read before the "Round Table" of Boston, about 1888, and republished in his little book, *The Higher Education*,¹ says: "Any one possessed of the requisite information knows at once what is meant by the university of France, the English universities, or a German university; but no one can become so conversant with facts as to tell what an American university is." And again: "— it is scarcely less true than it was a score of years ago, that, although there may be universities in America, no one can tell what an *American* university is."

A discouraging statement certainly, if true, for the would-be exponent of the American university! While not so accurate at the present day as when first made, it is still true enough, if one fail to free himself at the very start from dependence upon the *name* as necessarily indicative of the *thing*. It is incontestable that within the last ten years the conception of the natural and necessary relation of the "university" to the "college" has become much clearer, and that many and important changes of organization and administration have resulted, so that it is certainly easier than it was in 1888 to define, or at least to describe, the American university. However, there remain difficulties of many kinds; and it still is, and will undoubtedly be for years to come, if not actually impossible, at least very difficult, to give a definition broad enough to include all institutions of learning in the United States which possess true university character, and precise enough to exclude all others.

¹ N. Y., Chas. Scribner's Sons, 1899.

The first difficulty is this: The names "university" and "college," as used in the official titles of institutions, are absolutely worthless as indications of the character of these institutions. Among the scores of titular "universities" in this country most are merely colleges, some good, some indifferent, some so badly endowed and organized as to be not even good high schools. On the other hand, Bryn Mawr "college" has never assumed, even in informal use, the name "university," yet offers true university instruction of the highest order in most of the subjects covered by the *philosophische Fakultät* of a German university; and even Harvard and Columbia, though they have now acquired a true university character, of a very elaborate type, and are habitually spoken of as such, have retained in their corporate titles their ancient designation of "college." It happens that in the most eastern states the word "university" is much less used as a title, the higher institutions of learning having mostly been founded while the English influence was still strong, many of them indeed in colonial times, under direct English authority, and so having adopted the peculiarly English name of "college." In the newer states more ambitious plans prevailed, and the consideration of conditions in non-English European countries—notably those of Germany, where the universities had obtained a more commanding position and influence than elsewhere by the beginning of the 19th century—led to the choice of the name of apparently greater dignity. This consideration seems also to have been paramount with the founders of the countless purely sectarian institutions which sprang up all over the country, and still lead a precarious existence, striving to hold the attention of their brethren in the faith by promiscuously showering down honorary degrees. Yet it would be grossly unfair to assume that in all cases the name of university was adopted out of pure conceit; in many the choice of name was the proclamation of a purpose sincerely cherished, and resolutely carried forward, amid difficulties of which the European critic can form no conception, to a realization

more or less complete. It will be necessary then to get rid of this first difficulty by ignoring completely the difference in title. If we shall succeed in describing the *thing*, though we may be ever conscious of the unfortunate ambiguity of terms, now doubtless too firmly fixed in official and legal use to be easily changed, we may rest content.

Another difficulty is this. It is now clearly seen that, as institutions, the college and the university, having very different functions, demand a different organization and administration. Yet the full recognition of this fact is comparatively recent, and the logical consequences have been reached in only a few instances. The circumstances of foundation and the necessities of the hour have made it practically impossible for the university and the college in the United States to exist apart. There are still but two institutions which may be called even fragmentary universities entirely unconnected with a college: The Clark university of Worcester, Mass., and the Catholic university of America at Washington. Down to 1876, when the Johns Hopkins university was opened, whatever real university instruction was offered was organized at a college already existing, and even the founders of the Johns Hopkins, though their chief purpose was avowedly to provide for university instruction of the highest grade, felt it necessary or at least advisable to organize a college also. The wide scope planned for Cornell university, opened in 1868, from the first necessarily included a college, nay, many colleges, as part of the scheme. In all discussion of the American university, therefore, in this article it must be borne in mind that the term (with the two exceptions noted above) is used to include only certain parts of institutions whose organism is often highly complex, and that probably no two institutions coincide in theory or even in practice, though certain principles and practices are common to those of more complete type.

What then is that American university, a description of which is here undertaken, if it does not anywhere exist in completeness and exactness, unobscured by contact with

institutions of different character and divergent aims? It will be least misleading to say at the outset: It is nowhere. In so far, therefore, Professor von Holst's famous pronouncement is right; a university in the European sense does not exist in America. And yet, from Harvard on the Atlantic tidewater to the University of California, which looks out through the Golden Gate upon the Pacific, and from Minneapolis to New Orleans, will be found many institutions which offer training in the methods of scientific research, opportunities for the prosecution of such research, and abundant facilities in the way of libraries, museums and laboratories, to those individuals who have had such preliminary training as to be able to profit fully by these advantages, and which certify by the formal bestowal of a particular degree or degrees that the individual receiving one of them has proved himself or herself to have acquired the methods and habits of such scientific research. This is equivalent to saying, in the technical language in vogue in the United States, that these institutions offer to graduate students courses leading to advanced or higher degrees. Where such courses are well organized and equipped and successfully maintained, there is a university at least in part, and, it may be, in the whole. Whether the institution do only this, or this and many other things besides, and whether it be called university or college, may be important questions from some points of view; for the point of view of this discussion the existence of such organization for research work by graduates is the test, and it is its purpose to describe as clearly as possible such organization of this character as may be found in the United States of America. Apparent or evident divergations from this strict purpose will perhaps find readier pardon from the foregoing allusions to some of the difficulties in the way.

II DIFFERENT FORMS OF AMERICAN UNIVERSITIES. THE STATE UNIVERSITIES. CONTRAST WITH EUROPEAN UNIVERSITIES

It has often been remarked by observant foreign travelers in the United States that among this young people many institutions change less rapidly than in the older nations of Europe. This conservatism, in large part an English trait persisting through many generations, is particularly observable in the field of education; experiments are carefully tried, downright innovations still less willingly adopted. Only where occasion is offered for new foundations are we apt to find a ready breaking with traditional forms. When, on reviewing the American institutions of learning to discover which of them give the opportunities for training in the methods of research that we have taken as our standard of measurement, we find them to be almost without exception colleges, or technical schools, or professional schools as well, or all of these together, we shall also find that they were generally colleges first of all, and that training in research was made a part of the system only later, very gradually and hesitatingly, the two institutions which disclaim all "college" work being almost the youngest, and one of them not yet displaying a very encouraging vitality. We shall find also that one of the oldest and most famous colleges of all, Yale, was also the first to institute regular courses of instruction for those who wished to pursue their studies after receiving the degree of bachelor of arts.

A. Universities unconnected with colleges

1 Clark university, Worcester, Mass.—Clark university was founded in 1887 by the generous gift of Mr. Jonas G. Clark, and the work of instruction was begun in 1889. From the first the range of the future university was strictly limited; there was to be no college, no technical school, no professional schools pure and simple. Only those who had taken a first degree were to be admitted, and of these only

such individuals as should give promise of high attainments in some specialty of scientific research. The design and organization of the new institution were intrusted to Mr. Stanley G. Hall, for some years professor of philosophy at Johns Hopkins university in Baltimore. Only a few departments were organized, and these were intended to cover subjects closely and organically connected, viz.: mathematics, physics, chemistry, biology (including anatomy, physiology and palæontology) and psychology (including neurology, anthropology, criminology and history of philosophy). It was strongly emphasized in the scheme of foundation that so far as possible the line of demarcation between professor and student should be wiped out; the professors and other instructors were to feel themselves as merely older students, the students were to be expected to lecture occasionally on topics connected with their chosen specialties. The attempt to secure large numbers of students was expressly disclaimed. Seminar-organization was adopted as the essential plan of the institution, one which should bind together instructors and students into homogenous groups. For successful completion of certain requirements of research, including the publication of an acceptable dissertation, the degree of doctor of philosophy was offered. A number of fellowships and scholarships were established, making it possible for students of limited means to carry on their researches unhampered by the necessity of seeking lucrative employment outside of their university studies.

As was expected, the number of students has never been great; it has varied from 53 in 1892-3 to 38 in 1896-7 and 48 in 1898-9. The number of instructors has remained nearly constant, being in 1898-9 10. The departments at present (1899) organized are the following: Mathematics, biology, philosophy, physics, pedagogy, psychology and anthropology; it is intended to organize others from time to time, in logical order of development. Thus far Clark university, judged by its size alone, is a "torso of a university," to use Professor von Holst's famous phrase; its

methods, however, and the character of the work accomplished there, are thoroughly those of the most fully developed universities of the old world.

2 The Catholic university of America, Washington, D. C.— The inception of this institution dates from 1884, when its establishment was decided upon at a Roman Catholic congress held in Baltimore. The actual work of instruction was begun in 1889, in the school of theology. The university is now constituted as follows :

1 School of divinity, comprising four departments : a Biblical sciences ; b Dogmatic sciences ; c Moral sciences ; d Historical sciences.

2 School of philosophy, comprising six departments : a Philosophy ; b Letters ; c Mathematics ; d Physics ; e Chemistry ; f Biological sciences.

For admission to the school of philosophy candidates must have received the bachelor's degree, or show by passing an examination that they have received the full equivalent of a collegiate course of training. Two degrees are granted, master of philosophy (Ph. M.), after two years' graduate study, an examination on a major and a minor subject, and the presentation of a satisfactory dissertation ; and doctor of philosophy, after not less than three years' graduate study, an examination on a major and two minor subjects, and a satisfactory dissertation.

3 The school of social science, comprising four departments : a Sociology ; b Economics ; c Political science ; d Law.

The first three of these constitute a school of social science, or political science, in a narrower sense. Three degrees are offered, bachelor, master and doctor of social science ; no specific period of study is prescribed for them, but satisfactory dissertations are required and examinations must be passed. The department of law is somewhat differently organized, and grants six degrees : bachelor and master of laws, doctor of civil law, doctor of ecclesiastical law, doctor of civil and ecclesiastical law (J. U. D.), and doctor

of laws (LL. D.). The holding of a bachelor's degree, while not demanded for admission to the school of law, is urgently recommended.

4 The institute of technology consists of four departments: a Applied mathematics; b Civil engineering; c Electrical engineering; d Mechanical engineering.

Neither Clark university nor the Catholic university of America admits women to any of its courses of instruction.

B. Universities united with colleges and professional and technical schools

The union of college and university may fairly be called the typical American form of organization for the higher education. Only in the institutions of comparatively recent origin do we find that university organization was attempted from the first. The professional and technical schools have generally occupied a position of great independence toward the institution as a whole, in many cases having hardly more than the name in common, but possessing their own budgets and boards of trustees, sometimes even being administered as proprietary schools, wherein the professors divided among themselves the fees paid by the students. The medical schools have been the most independent in this respect. It should be borne in mind that in the case of such complex institutions the name "university" is applied to the whole, so that, theoretically at least, the university may include the equivalent of a German university, *technische Hochschule* (formerly called *Polytechnicum*), *landwirtschaftliche Hochschule* or agricultural college, and *Gymnasium*. Passing under review the many types of organization wherein university and college are united, we shall find that in most cases the graduate and undergraduate work are carried on by the same individuals, so that, instead of a university and a college being in alliance, so to speak, as might be said if the body of instructors of each part were composed of quite different individuals, with one governing body for the whole, we have to do really with a complex and overlap-

ping structure. Herein lies, it must be said, one of the greatest disadvantages for the American university, though there are valuable compensations. The American university professor is rarely able to devote himself exclusively to advanced scientific work with well-prepared students, but must, in most cases, carry on a good deal of mere class work as well, which cannot but prove detrimental to the progress of his researches.

The many institutions falling under this head illustrate almost as many principles of combination as there are institutions. A detailed description of all is of course impossible here; those that are chosen as the most instructive types may best be grouped in two classes:

Into the first class (*a*) will come those which, though possessing both a collegiate or undergraduate and a graduate department, yet in practice draw a hard and fast line between the two, conducting the undergraduate and graduate courses as entirely separate, sometimes with quite different methods, and rigidly excluding from the latter courses all who have not taken a baccalaureate degree or its equivalent (as for example the *testimonium maturitatis* or *Reifezeugniss* of a German gymnasium). Very few institutions belong in this first group.

a

1 **Johns Hopkins university** — This famous establishment, the good influence of which upon the general development of higher education in the United States has been incalculably great, was founded by the noble bequests of Johns Hopkins, a citizen of Baltimore. Mr. Hopkins devoted nearly all of his estate, amounting to more than three and a half million dollars, to the foundation of a university and a hospital. The institution was incorporated in 1867; the board of trustees was organized in 1870, and held its first meeting in 1874. In the same year Professor Daniel Coit Gilman, of the University of California, and previously of Yale university, was elected president. The work of instruction was begun in 1876; from the first the chief aim was proclaimed to be the

development of instruction in the methods of scientific research. An undergraduate or collegiate course was also arranged, intended to give the best possible preparation for the advanced work, and leading to the degree of bachelor of arts. In the university proper only a faculty of philosophy was organized, as the faculty of medicine, which was also planned, had to wait for its realization upon the opening of the hospital. This event took place in 1889, and four years later the school of medicine was opened. It admits women on equal terms with men, this having been stipulated by Miss Garrett, by whom large gifts were made; women are not admitted to either the school of philosophy or the undergraduate department.

An important place at Johns Hopkins university has always been held by the "fellows." Twenty fellowships are awarded each year to the most promising among the many candidates, without preference of college; each fellowship is of the annual value of \$500, though it does not exempt from charges for tuition. The candidates must prove their ability to carry on independent researches in the subjects in which they seek fellowships, and engage to prosecute such researches during the time of their appointment. In the language of the official announcement of the university the fellowships are bestowed "almost exclusively on young men desirous of becoming teachers of science and literature, or proposing to devote their lives to special branches of learning which lie outside of the ordinary studies of the lawyer, the physician and the clergyman." The university also extends the privilege of "fellowships by courtesy" (without emolument) to certain individuals.

The university receives as students the following classes:

1. College graduates and other advanced scholars, who may proceed to the degree of doctor of philosophy, in literature or science, or remain for longer or shorter periods in such of the various seminaries or laboratories as they may choose.
2. Undergraduate students looking forward to the degree of bachelor of arts.
3. Candidates for the degree of doctor

of medicine. 4. Doctors of medicine desiring to pursue certain postgraduate courses. 5. Students who have taken no degree, and are not looking forward to a degree, but who desire to avail themselves for a brief period of the opportunities here offered.

The courses of study under 1, 3 and 4 are entirely closed to those who are still candidates for a baccalaureate degree.

2 Bryn Mawr college— This excellent institution for women, modeled closely after the pattern of Johns Hopkins university, is situated at Bryn Mawr, a suburb of Philadelphia. It was founded chiefly by the gifts of Dr. Jos. W. Taylor and other members of the Society of Friends ("Quakers"), and opened in 1885. Four classes are admitted: Graduates, undergraduates, special students, and hearers; the latter, receiving no formal recognition from the institution, are admitted to various courses by the consent of the instructors. To the graduate courses only holders of the degree of bachelor of arts are admitted. These courses cover the usual ground of the "faculty of philosophy," as at Johns Hopkins, *i. e.*, philosophy, logic and psychology, language and letters, political and social science, history, natural science and mathematics, and lead to the degrees of master of arts and doctor of philosophy.

From the first the standard set at Bryn Mawr has been extremely high, and a very able body of instructors has been secured. Its degrees are held fully equal to those granted anywhere in the United States.

3 University of Pennsylvania— In 1751 the "Charitable School" at Philadelphia, which had been established in 1740, was reconstituted, under the advice of Franklin, into an academy, comprising an English, Latin and mathematical school. Two years later a charter was granted by the governors of the province of Pennsylvania; and in 1755 the institution received the privilege of granting degrees, and was officially designated as: "The College and Academy of Philadelphia, in the Province of Pennsylvania." In 1791, after several years of tribulation, a more recent institution,

founded largely by spoliation of the old college, was united with it, under the name of the University of Pennsylvania.

The university is entirely a private and self-perpetuating corporation, except that the governor of the state is *virtute officii* president of the trustees. It comprises the following teaching divisions: The college, including the school of arts and the Towne scientific school; the department of philosophy (graduate school); the department of law; the department of medicine; the laboratory of hygiene; the department of dentistry; the department of veterinary medicine.

The department of philosophy, or graduate department, is organized to give advanced instruction in the various branches of literature and science. Admission is granted to persons holding a "bachelor's degree in arts, letters, philosophy, pure or applied science, granted by the University of Pennsylvania or by any college or university whose degrees are recognized by this university." Admission to the graduate school does not imply admission to candidacy for a degree. The courses of instruction are grouped as follows: I. Semitic languages. II. American archæology and languages. III. Indo-European philology. IV. Classical languages. V. Germanic languages. VI. Romanic languages. VII. English. VIII. Philosophy, ethics, psychology and pedagogy. IX. History. X. Economics, politics, sociology and statistics. XI. Mathematics. XII. Astronomy. XIII. Physics. XIV. Chemistry. XV. Botany and zoology. XVI. Geology and minerology.

The principle of separation between undergraduate and graduate students is, with some few exceptions, strictly carried out. These exceptions are found chiefly in departments which are not represented in the college plan of instruction except by one or more courses offered to seniors, as *e. g.* Semitic languages and Sanskrit.

In this group might also be placed, with some reservations, Yale university. The graduate school, which conducts the courses leading to the degrees of master of arts and doctor

of philosophy, while accepting as a rule only actual graduates of Yale or other colleges, admits in exceptional cases other persons of liberal education. Some few of the higher undergraduate courses are open to graduate students, and may be counted toward the higher degrees. A description of the organization of the university will be given below.

b

By far the greater number of institutions which conduct "graduate" work fall into the second division (*b*) which we have established, as not drawing a rigid line of demarcation between the undergraduate and the graduate courses. This does not mean that students who have not received their first or bachelor's degree, or its equivalent, are accepted as candidates for the master's or doctor's degree, for to the writer's knowledge that is nowhere the case; but merely that some at least of the courses leading to the higher degrees are open to undergraduate students. This feature, so difficult for foreign, especially German, observers to understand, is partly a necessity, partly the result of a deliberate policy which has in the main well justified itself. The policy will be discussed later; the necessity has arisen from the limited endowment of most of the institutions, which has made it impossible, even where it would have been desirable, to increase largely the number of professorships and the extent of such educational aids as libraries, laboratories, etc.

The institutions remaining for our consideration are most conveniently divided into those of private (or originally private) foundation and the "state universities." The former have generally been aided at different times with greater or less liberality by the governments of the states in which they are established, in many cases a return having been demanded by the state in the form of free scholarships of one or another kind, or other privileges; the state universities have frequently received valuable aid from private individuals. It should be stated here that the national government supports no universities, this being left entirely to the separate states.

Institutions of private foundation

I Harvard university — The foundation of this venerable institution, at once the oldest, largest and most famous seat of learning in the United States, dates from 1636, when the general court of the colony of Massachusetts Bay voted a gift of four hundred pounds "towards a *school* or *college*." Instruction was not begun until 1638, in which year a bequest of John Harvard, a non-conforming clergyman of England, and a graduate of Emmanuel college, Cambridge, who had died at Charlestown, became available. The sum realized was sufficient to open the institution at once, and the gratitude of the court was shown by the attachment of Harvard's name to the new college. In 1642 the management of the institution was entrusted to a board of overseers; in 1650 the college was made a *corporation*, the board of overseers being also retained. With considerable changes in the mode of selecting the president and fellows (who constitute the "corporation") and the overseers, this organization has persisted until the present day. The corporation is self-perpetuating; the board of overseers, for a long period chosen by the legislature of Massachusetts, is now elected entirely by the graduates of Harvard college. From 1636 until 1782, when a school of medicine was established, Harvard college composed the entire institution, conferring only the degrees of bachelor and master of arts. The term university seems to have been first applied to it in 1780, and has for many years been used of the institution as a whole, of which Harvard college is by statute merely a part. The legal titles of the controlling bodies are, however, "The President and Fellows, and the Board of Overseers, of Harvard College." The various departments of the university, added from time to time, have been largely reorganized during the last ten years. The present organization of the departments of instruction is briefly as follows:

I-III Three schools under the *faculty of arts and sciences*, viz.:

- I Harvard college, leading to the degree of bachelor of arts.
- II The Lawrence scientific school (degree of bachelor of science).
- III The graduate school (degrees of master of arts, master of science, doctor of philosophy and doctor of science).
- IV The divinity school (degree of bachelor of divinity).
- V The law school (degree of bachelor of laws).
- VI The medical school (degree of doctor of medicine).
- VII The dental school (degree of doctor of dental medicine).
- VIII The school of veterinary medicine (degree of doctor of veterinary medicine).
- IX The Bussey institution (degree of bachelor of agricultural science).

Of these the graduate school corresponds very closely in range and methods of instruction to the *philosophische Fakultät* of the universities of Northern Germany, offering courses of research in philology (Semitic languages, Indo-Iranian, the classics (including Greek and Roman archæology), English, Germanic and Scandinavian, Romance languages, Celtic, Slavonic, history and political science, philosophy (including ethics and psychology), fine arts, music, mathematics, astronomy, physics, chemistry, botany, zoology, geology, mineralogy, American archæology and ethnology, physiology. Admission to the graduate school is ordinarily granted to graduates of colleges and scientific schools of good standing. This does not, however, imply admission to candidacy for a degree; such is granted only to those whose credentials are approved by the committee on admission from other colleges, which satisfies itself that the applicant has had a training substantially equivalent to that demanded for the Harvard bachelor's degree. It frequently happens that such applicants spend a year in study for the Harvard degree of bachelor of arts, after which they may or may not go on to the higher degrees.

The courses offered under the faculty of arts and sciences are of three kinds:

(1) Primarily for undergraduates. These, though often open to graduates, may be counted only toward the bachelor's degree.

(2) For undergraduates and graduates. These may be counted toward either the bachelor's, or toward the master's and doctor's degrees; they are attended chiefly by undergraduates in their last, or graduates in their first, year of study as such.

(3) Primarily for graduates. These courses are attended only by such undergraduates as have made unusual progress in their studies, and some of them are entirely closed to undergraduates.

The school of law, with a course of three years, admits to full standing as candidates for the degree holders of a bachelor's degree in arts, literature, philosophy or science granted by certain institutions named in the university catalogue, also persons qualified to enter the senior class of Harvard college. In the main it may be called a true graduate school, as out of 551 students enrolled in 1898-9, 489 held the bachelor's degree. This is true, in a minor degree, of the school of divinity, in which candidates for the degree of bachelor of divinity must have a satisfactory degree in arts or an equivalent approved by the faculty. The medical school, which at present prescribes a moderate examination for entering students, will soon be put on a true university basis by the requirement that in and after June, 1901, candidates for admission must present a degree in arts, literature, philosophy, science, or medicine from a recognized college or scientific school; from this rule exceptions are to be made only by special vote of the faculty in each case.

2 Yale university, New Haven, Conn.—In 1701 there was founded at Saybrook the Collegiate School of Connecticut, which was transferred to New Haven in 1716, and in 1718 renamed Yale college, in recognition of the gifts made to the young institution by Elihu Yale of London. The degree of bachelor of arts, first awarded in 1702, was the only one given until 1814. In the latter year the degree of

doctor of medicine was first bestowed, that of bachelor of laws in 1843, doctor of philosophy in 1860, and civil engineer and bachelor of divinity in 1867. The name Yale college was retained by the entire institution until comparatively recent years.

The present organization shows four departments : I Philosophy and the arts ; II Theology ; III Medicine ; IV Law.

The department of philosophy and the arts includes Yale college (for some years called the "academical department"), the Sheffield scientific school, the graduate school, and the schools of fine arts and music. The graduate school, in its reorganized form, corresponds quite closely to that of Harvard university and to the German *philosophische Fakultät*, but differs from the latter in including advanced technical instruction in civil and mechanical engineering. It offers the degrees of master of arts, master of science, doctor of philosophy, civil engineer, and mechanical engineer. Admission is granted to graduates of Yale and of other colleges and universities, and (in exceptional cases) to other persons of liberal education, at least eighteen years old. The departments of study are these: Psychology, ethics and philosophy ; economics, social science, history and law ; Semitic languages and biblical literature ; classical and Indo-Iranian philology ; modern languages and literatures ; natural and physical science ; pure and applied mathematics ; the fine arts ; music ; physical culture. Out of 257 students registered as in actual attendance upon the courses of the graduate school in 1898-9 only 8 were not holders of degrees, and of these 6 had received academic training in Japan. Some of the courses designed for advanced undergraduates in Yale college or the Sheffield scientific school are open to graduates, and may be counted toward the higher degrees. The schools of theology, medicine and law do not demand the possession of a degree as a condition of entrance, though this is practically recommended.

3 Columbia university, New York — In 1754 there was founded in the city of New York, under royal charter of

George II, an institution for the education of youth, to which the name Kings college was given. The college existed under this name until 1784, though the exercises were partially, at times wholly, suspended during the war of the revolution. In 1784, on the incorporation of the "Regents of the University of the State of New York," the property of Kings college was vested in them, and its name changed to Columbia college. In 1787, however, this act was repealed, and the original charter issued to the college was confirmed. The legal style of the new corporation was fixed as "The Trustees of Columbia College in the City of New York." This is still its legal designation. In 1896 the board of trustees sanctioned the use in all official publications of the term Columbia University in the City of New York; the name Columbia college has accordingly been restricted to its original sense, viz., the college proper, exclusive of the professional and graduate schools. It had been for some years customary to speak of this as the school of arts, to distinguish it from the schools of law, medicine and mines. The school of medicine (which bears also the title college of physicians and surgeons) was founded in 1807, the school of law in 1858, the school of mines in 1864; from the latter were set off in 1896 the schools of chemistry, engineering and architecture. Affiliated with Columbia university are Barnard college, founded in 1889, and Teachers college, founded in 1888. The former offers to women undergraduates courses identical with those given in Columbia college, while its graduate students are admitted to the work of the faculties of philosophy, political science and pure science in Columbia university; the latter is devoted to the special training of teachers, men and women alike, and certain of its courses are accepted by Columbia as part of the work required for its degrees, both baccalaureate and advanced.

The organization of Columbia university, excluding Barnard and Teachers colleges, is as follows:

I Columbia college.

II The university, including

A. The non-professional schools

1 Faculty of philosophy, which offers advanced courses and opportunities for original research in philosophy and education, psychology, Greek and Latin (including archæology and epigraphy), English, literature, music, and the Germanic, Romance and oriental languages.

2 Faculty of political science, giving similar instruction in political and social science, including history, economics and public law.

3 Faculty of pure science, for mathematics and the various branches of natural science.

4 Faculty of applied science, covering mining, metallurgy, engineering and architecture.

B. The professional schools

These are

1 School of medicine, or college of physicians and surgeons, with a four years' course leading to the degree of doctor of medicine.

2 School of law, with a three years' course leading to the degree of bachelor of laws.

3 Schools of mines, chemistry, engineering and architecture, which are under the charge of the faculty of applied science, and offer courses, each of four years, leading to the appropriate technical degrees (bachelor of philosophy, engineer of mines, civil engineer, etc.).

Applying the test hitherto used, we find that the non-professional schools, which award the degrees of master of arts and doctor of philosophy, exact as the condition of admission to candidacy for a degree the possession of a baccalaureate or equivalent degree. Their organization as three faculties (or four) instead of one is modelled largely after those South German universities which have subdivided the ancient faculty of philosophy into two or more parts. The professional faculties do not as yet demand the possession of a degree of entering students; but the faculty of law has

announced that in and after 1903 the bachelor's degree in arts or philosophy will be required of all candidates for admission to full standing. (In 1898-9, out of 348 primarily registered under the faculty of law, 216 held degrees.)

A peculiarity of the Columbia organization is the system by which seniors in Columbia college, who have entered the college not later than the beginning of the junior year, are allowed to select part or all of the courses necessary for the bachelor's degree from among those designated by the "university" faculties, professional or non-professional, as open to them. Naturally only the introductory courses, or those of more general bearing, are so offered by these faculties. The object of this arrangement is to shorten the time necessary to the attainment of the higher, particularly of the professional, degrees. With the establishment of the four years' course in medicine, and the higher standards set by all the faculties, it was found that those who finished their college course before entering on professional studies could rarely secure the professional degree before reaching their twenty-fifth year, and it was believed that while good students should be ready to begin professional work after completing their third year in college, yet the bachelor's degree should not be cheapened by awarding it for less than four years of collegiate study. On the whole the plan has worked well, though some complaints are made of the difficulty of carrying on graduate courses to which undergraduates, often necessarily of a lower grade of preparation, are admitted. In many cases courses thus open to undergraduates and graduates alike may not be counted toward the higher degrees unless additional work be done in connection with them.

4 Cornell university, Ithaca, N. Y.—Cornell university occupies a middle ground between the institutions of private (or chiefly private) foundation and independent corporate existence and the state universities to be described below. Its foundation was chiefly due to the generosity and strenuous efforts of Ezra Cornell, and it possesses corporate independ-

ence; but the government of the state of New York is represented by *ex-officio* members on the board of trustees, and the funds for its establishment, other than those given by Mr. Cornell and other benefactors, were derived from the sale of the grants of public lands made to the state of New York by the "Morrill Act" of the national congress in 1862. Mr. Cornell's plan designed the establishment of an institution "where any person might find instruction in any study;" and if this has long since been seen to be impossible of realization, yet the very breadth of sympathy evidenced by the desire has resulted in a foundation of unusual breadth and strength. The university was incorporated in 1865, and opened to students in 1868. Its constitution has undergone many changes, as well of internal arrangement as of outward expansion; its present organization is the following:

- I Graduate department.
- II Academic department, or department of arts and sciences.
- III College of law.
- IV College of civil engineering,
- V Sibley college of mechanical arts.
- VI College of architecture.
- VII College of agriculture.
- VIII College of medicine.

The New York state veterinary college and college of forestry are administered by Cornell university. The college of medicine, constituted in 1897-8 from the faculties of two medical schools already existing in the city of New York, is situated in that city, though the work of the first two years may be done in Ithaca.

The graduate department provides courses of instruction and research for graduate students leading to advanced degrees. No sharp line is drawn between graduates and undergraduate students, many of the courses being open to undergraduates who have prepared themselves by taking the necessary preliminary elective courses, but a large num-

ber are specially adapted to the wants of graduate students, and some are open exclusively to them. The degrees offered to graduate students are : Master of arts, master of science in architecture, master of civil engineering, master of mechanical engineering, master of science in agriculture, and doctor of philosophy.

Seniors and juniors in the academic department are allowed, with certain restrictions, to elect studies in other departments of the university which shall count towards graduation in the academic department. The Columbia principle is thus applied more widely.

The schools of law and medicine have not as yet made the possession of a first degree a necessary condition of admission.

The exigencies of space forbid the description here of several of the prominent autonomous corporative institutions which include true university instruction in their work, such as Brown university at Providence, R. I., Princeton university in New Jersey, the Leland Stanford, Jr., university at Palo Alto, Cal., the Tulane university of Louisiana, the Vanderbilt university at Nashville, Tenn., and others. All comprise the college and the various scientific schools. We turn, therefore, to the most recently founded of the larger institutions, one which has taken at a bound a place in the very front rank of American education.

5 The university of Chicago — The history of the university of Chicago begins with the year 1886, when Mr. J. D. Rockefeller formed the idea of founding a new institution of learning in Chicago. By a series of extraordinarily munificent gifts, made by Mr. Rockefeller and others, the establishment of the new institution was assured ; the first buildings were erected in 1891, and the doors opened to students October 1, 1892. The organization is complicated, and in many respects unlike that of any other American university. An entirely original feature is the division of the academic year into four quarters of twelve weeks each, instead of two or three terms. Instruction is given during the whole year,

except during the interval of one week at the end of each quarter; students remain for one or more quarters as they chose, and each instructor is bound to teach during thirty-six weeks of the year, with certain bounties for additional instruction given beyond this requirement. The university is organized in five distinct divisions: I The schools, colleges and academies; II The university extension; III The university library, laboratories and museums; IV The university press; V The university affiliation. The first division, comprising the whole teaching staff of the university proper, consists of 1 The schools; *a* Graduate schools; *b* Professional schools. 2 The colleges; *a* Junior college, corresponding to the first two years; *b* Senior college, corresponding to the last two years of the ordinary college.

The graduate schools thus far organized are two, the graduate school of arts and literature, and the Ogden (graduate) school of science. Admission is granted (1) to those who have been graduated from the colleges of the university of Chicago with the degree of bachelor of arts, science or philosophy; (2) to graduates of other institutions of good standing, holding degrees corresponding to those granted by the university. The degrees conferred are: Master of arts, master of science, master of philosophy, and doctor of philosophy. Most of the courses in the graduate schools are open to graduate students only, but some are open to students in the senior college who have received the preliminary training enabling them to profit by these courses. The divinity school includes, *a* the graduate divinity school, designed primarily for college graduates; *b* the English theological seminary, with resident courses only in the summer quarter; *c* and *d* the Scandinavian theological seminaries. The graduate divinity school admits to candidacy for the degree of bachelor of divinity only graduates of accepted colleges; the degrees of master of arts and doctor of philosophy are also offered.

The state universities

At the present time, in each of twenty-nine of the states of the union, there is maintained a single "state university," supported exclusively or prevailingly from public funds, and managed under the more or less direct control of the legislature and administrative officers of the state. In some cases private benefactions have notably supplemented the support given from public revenues. These states are the following: Alabama, California, Colorado, Georgia, Illinois, Indiana, Iowa, Kansas, Louisiana, Maine, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, North Carolina, North Dakota, Ohio, Oregon, South Carolina, South Dakota, Tennessee, Texas, Virginia, Washington, West Virginia, Wisconsin, Wyoming.¹ The organization of these institutions, while more similar than that of the universities which are autonomous corporations, yet shows many points of divergence; and their extent and standards of scholarship vary even more widely. The larger among them exhibit a very complete development of technical and professional schools, with the exception of schools of theology, which naturally have no place in a country where state aid is not extended to religion. The professional schools of law and medicine, however, are generally supported, at least in greater part, by the fees received from students, and up to the present time none of them has been put on a true university basis. Otherwise, the sources of income of these universities are mainly the following: 1 The proceeds of land-grants made in 1862 by the federal government, in accordance with the famous "Morrill Act" of 1862, for the maintenances of colleges whose leading object should be instruction in those branches of learning relating to agricultural and mechanical arts, including military tactics, and not excluding other scientific

¹ The university of the state of New York is not a university at all, but rather a state board of education, with supervision of all instruction given in the state. The "University of France," as constituted under Napoleon I, is closely analogous to it.

and classical studies; 2 State taxation, whether by way of annual appropriations from the general taxes of the state, or by continuous appropriations from a permanent special tax; 3 Tuition fees (only in some of the universities, while in many instruction is entirely gratuitous); 4 Private gifts and endowments — the least common source of revenue, although some brilliant exceptions are to be noted.

The universal verdict of public opinion, in the states where such institutions are maintained, is that they, as state organizations supported directly by public taxation from which no taxable individual is exempt, should be open without distinction of sex, color or religion to all who can profit by the instruction therein given. Each forms the uppermost division of the general system of public education of the state in which it is maintained, and is managed with a view to completing the scheme of instruction begun in the primary and carried on in the secondary schools. Control is vested in a board of public officials, generally called "regents." For example, the board of regents of the University of Minnesota consists of the governor of the state, the superintendent of public instruction, the president of the university, and seven members appointed by the governor and confirmed by the senate. In Michigan the regents are elected by popular vote for terms of eight years—an unusual feature. The composition and mode of choice of these boards varies greatly in different states, and not less their fitness for the responsibilities entrusted to them. In some states, as in Michigan and Wisconsin, the result of many years' endeavor has been, though after many vicissitudes and bitter struggles, the creation of noble schools of training; in others the constant changes in political complexion of the legislature, and the self-seeking of party leaders, have made the universities mere shuttlecocks of public or party opinion, and not only has their development been hindered, but in some cases their usefulness deliberately crippled. Instances are not unknown where particularly able and courageous professors, who would not cut their

scientific opinions after the prevailing fashion in politics, have been driven from their chairs, even by outrageously underhanded methods.

Of the state universities the most prominent and successful are those of Michigan, Minnesota, Wisconsin, and California. The first mentioned is the oldest and perhaps the best known. Under the direction of a series of singularly able men it has grown, since its foundation in 1837, into a position of commanding importance. The three others, while considerably younger, have shown a surprisingly rapid growth. As examples of the organization of state universities will be taken Wisconsin and California.

The University of Wisconsin, Madison, Wis.—When the state of Wisconsin was organized in 1848, the university was established by constitution as a part of the free school system of the state. The law establishing it declares that its object shall be “to provide the means of acquiring a thorough knowledge of the various branches of learning connected with scientific, industrial and professional pursuits.” The institution was reorganized in 1866, when the college of agriculture was united with it; and the professional and technical schools were added in rapid succession.

The university comprises six divisions:

I College of letters and science, with seven different undergraduate courses leading to baccalaureate degrees. The corresponding graduate courses lead to the higher degrees of master of arts, literature or science, and doctor of philosophy. These graduate courses include philosophy, pedagogy, economic and social science, history, philology, mathematics, natural sciences.

II College of mechanics and engineering; the undergraduate courses lead to the degree of bachelor of science, and graduate courses to those of civil, mechanical, or electrical engineer.

III College of agriculture, with three different courses, one leading to the degree of bachelor of science, and a course for graduates, to the degree of master of science.

IV College of law, with a three years' course, leading to the degree of bachelor of laws.

V School of pharmacy.

VI School of music.

The school of economics, political science and history and the school of education are subdivisions of the college of letters and science; their work extends over the later portion of the undergraduate, and through the graduate, departments. The line between advanced undergraduates and graduate students is not sharply drawn, some courses being open to both classes of students.

The University of California, Berkeley and San Francisco, Cal.—The University of California, an integral part of the public educational system of the state, was established in 1868, and instruction was begun the following year. The college of California, which had been organized in 1855, transferred its property and students to the new institution in 1869, and closed its own work of instruction. The professional schools, though contemplated in the original plan, were not actually organized until later. In June, 1888, the Lick observatory at Mount Hamilton became a part of the university.

The controlling body is unusually large, consisting of the governor and lieutenant-governor of the state, the speaker of the assembly, the state superintendent of public instruction, the presidents of the state agricultural society and the mechanics' institute of San Francisco, and the president of the university (all these *ex-officio*), and sixteen other regents appointed by the governor with the approval of the state senate.

The institution is supported by various state funds; the college of law has a special endowment; the other professional schools are supported by tuition-fees.

In 1898 gifts amounting to many millions of dollars were made to the institution by Mrs. Phœbe Hearst, which will make possible the development of the university on a scale hitherto unexampled in America.

The organization of the university comprises the following departments of instruction :

I In Berkeley :

A The colleges of general culture : Letters (with degree of bachelor of arts), social science (bachelor of letters), natural sciences (bachelor of science), commerce (degree not yet established).

B The colleges of applied science, leading to the degree of bachelor of science.

II At Mt. Hamilton :

The Lick astronomical department (observatory).

III In San Francisco :

1 The Mark Hopkins institute of art. 2 The Hastings college of the law. 3 The medical department. 4 The post-graduate medical department. 5 The college of dentistry. 6 The California college of pharmacy. 7 The veterinary department.

In the graduate department, regularly organized courses of instruction and research lead to the degrees of master of arts, literature or science, and doctor of philosophy. These courses comprise instruction in philosophy and education, history and political science, philology, decorative and industrial art, mathematics and natural science, engineering and agriculture. They are classified as : 1 Primarily for graduates ; 2 for graduates and advanced undergraduates.

Contrast with European universities

The foregoing account of the chief types of university organization in the United States will, it is hoped, have made clear most of the details in which their structure is peculiarly American. The older institutions, starting from the English type of college, never developed in the direction of universities of Oxford and Cambridge, where the idea of the university as a great teaching body was lost in the excessive development of the college as a place of residence, and of the university as primarily a congeries of colleges.

The early medieval universities of Europe, on the continent as well as in England, generally provided for their students places of residence in buildings set apart for this purpose, instruction of the lower grades in connection with these residence halls, and higher instruction independently of them. On the continent, however, especially in France and Germany, the residential feature rapidly became less important, and finally, with a few unimportant exceptions, disappeared altogether, so that the entire resources of the universities, though often scanty enough, could be turned to account for the work of instruction. In England exactly the opposite occurred; the residential halls became, through the impulse of successive pious foundations, the important factors in the university life, even attaining corporate independence and ultimately great wealth, and gradually assumed most of the instruction of the students, though the examinations and the award of degrees remained the prerogatives of the university as a whole — conditions which made directly for the fixity of residence characteristic of English universities, and adopted as a matter of course in the American colleges patterned after the English model. If the establishment of Harvard and Yale colleges had been followed at brief intervals of time by the foundation of other residential colleges in Cambridge and New Haven, and if there had existed in the colonies an established church with a prestige such as that possessed by the church of England in the home country, keeping the colleges under its control, a state of affairs similar to that at Oxford would doubtless have resulted. The scanty population and limited means of the colonies, and their independence of the church of England, prevented such a result, fortunately, on the whole, for the educational welfare of the country at large.¹ Yet the residential feature has persisted throughout the history of the American college; though abandoned here and there, as at Columbia and

¹ It is interesting to note that during the last few years the rapid growth of Harvard college, which had 1,851 undergraduate students in attendance during 1898-9, led to a suggestion that it be divided somewhat on the English plan into three or four separate colleges, a plan which met with little favor.

the University of Pennsylvania, it has been restored at the latter, has again been adopted in principle, if not yet in practice, at Columbia, and deliberately introduced, in various forms, at many new institutions, even in some which at first had made no provision for students' residence. The American institutions differ furthermore from the English universities in this, that their growth has been so largely in the direction of professional and technical schools, though these have been thus far in less than a half a dozen instances placed on a real university basis.

The points of difference between the American and the continental European universities are not less apparent. Taken as a whole, the American institutions exhibit only a portion of what in Europe is thought necessary to the constitution of a complete university, viz., the traditional four faculties of theology, law, medicine and philosophy, because, although all four may be in existence (as for example at Harvard), they are not all organized and administered on the same plane; but on the other hand they include elements which in Europe are sharply marked off from the universities, namely, technical schools, and undergraduate schools which in some cases correspond fairly well to the lycee or gymnasium of France or Germany, in others to the last two or three years of these institutions and the first year of the university or technical school. If we separate the strictly graduate schools of the American universities from the remainder of their respective institutions, we shall find them in general covering pretty nearly the ground of the "philosophical faculties" of Germany, and more or less closely approximating them in methods of work. A decided point of difference, however, consists in the comparative infrequency of migration on the part of students from university to university, which is so nearly the universal rule in Germany.

III EARLIEST BEGINNINGS OF UNIVERSITY OR GRADUATE INSTRUCTION. DEVELOPMENT OF THE UNIVERSITY OUT OF THE COLLEGE. INFLUENCE OF GERMAN MODELS AND METHODS

The catalogues of Harvard college contain, somewhat before 1800, the names of individuals enrolled as "resident graduates," though no statement is made of the advantages offered them or the work expected of them. This continues for many years, the numbers of the graduate students varying greatly; *e. g.*, in 1811 are entered twelve such; in 1825, one; in 1833, nine; in 1837, one; in 1845, 15; in 1850, three; in 1855, six; in 1860, nine. During the early years of the 19th century Americans began to seek out the universities of Germany. The first American to be graduated at a German university was Edward Everett, who was made a doctor of philosophy of Göttingen in 1817. He was followed in 1819 by Joseph Green Cogswell, by George Bancroft in 1820, and R. B. Patton in 1821. The inspiration there received sowed the seed from which has sprung such abundant fruit. Yet the seed was long in sprouting. A very interesting letter from Bancroft, written in 1871,¹ offering the foundation of a graduate scholarship, tells of the writer's unsuccessful attempts in 1821 "to introduce among us some parts of the German system of education, so as to divide more exactly preliminary studies from the higher scientific courses, and thus facilitate the transformation of our colleges into universities, after the plan everywhere adopted in Germany." He then continues: "But it is not easy to change an organization that has its roots in the habits of the country; and the experiment could not succeed." "I then applied * * * for leave to read lectures on History in the University. At Göttingen or at Berlin I had the right, after a few preliminary formalities, to deliver such a course. * * * My request was

¹ In the Harvard University Catalog for 1898-9, pp. 459 ff.

declined by my own alma mater. * * *” After 1821 no American seems to have received a German degree until 1848, when B. A. Gould, the astronomer, took the doctor's degree in philosophy. From this time on the numbers increased rapidly. Göttingen was the favorite university with Americans, though some studied elsewhere, W. D. Whitney taking his degree at Breslau in 1852.

The year 1847 saw the establishment at Yale of a “department of philosophy and the arts,” for scientific and graduate study, leading to the degree of bachelor of philosophy. The catalog of that year says: “The branches intended to be embraced in this department are such in general as are not included under theology, law or medicine; or more particularly, mathematical science, physical science and its application to the arts, metaphysics, philology, literature and history. The instructions in the department are intended for graduates of this and other colleges, and for such other young men as are desirous of pursuing special branches of study; but it is necessary for all students in philosophy and mathematical science that they be thoroughly grounded in these studies.” Among the first lecturers in these courses were President Woolsey in Greek, Professors Silliman in chemistry, Porter in logic and philosophy, Salisbury in oriental languages. During the years between 1847 and 1861 these courses were gradually expanded, and soon separated into two divisions, 1, the Yale (afterwards called the Sheffield) scientific school; and 2, special courses in history, philology, philosophy and mathematics. Other scholars of note were added to the list of lecturers, notably W. D. Whitney in 1854. In the catalog for 1860-61 appears for the first time in the United States the announcement that the degree of doctor of philosophy will be awarded. As candidates there were to be admitted, without examination, bachelors of arts, science and philosophy; others after successfully passing equivalent examinations. The degree was first bestowed in 1861. A distinct graduate school was first fully organized in 1872.

At the University of Michigan a university course was projected early in President Tappan's administration (1852-1863), but never fully carried out. In 1858-9 some graduate courses of lectures were established. The degree of master of arts was first conferred after examination in 1859; previously it had been given, as elsewhere, "in course," *i. e.*, after the lapse of a certain period.

At Columbia college a plan was formed between 1854 and 1857 to establish three schools, of philosophy or philology, jurisprudence and history, and mathematics and physical science, to extend through the senior year of the college and two years beyond it, the degree of bachelor of arts to be given as usual at the end of the four years' course. The plan was not completely realized, but twenty-five years later it was revived in a somewhat different form by the establishment of the school of political science, and the principle has been substantially adopted in the present organization of the university. In 1858 courses of lectures for advanced students were opened by Professors A. Guyot, G. P. Marsh, W. G. Peck and others, but continued only for one year.

In 1860 the Harvard catalog contains for the first time a definite statement about graduate students: "Graduates of the university, or of other collegiate institutions, desirous of pursuing studies at Cambridge without joining any professional school, may do so as resident graduates." In February, 1863, courses of lectures were offered "open to all graduates of colleges and school teachers who enter their names, to persons connected with the university, except undergraduates, and to others on payment of \$5" on natural science, philosophy, literature, art, etc. Among the lecturers were Louis Agassiz, James Russell Lowell, Charles Eliot Norton. These lectures were continued until 1872; but the number of resident graduates remained practically stationary, even declining to 5 in 1868-9.

In 1872 Harvard university announced that it would confer the degrees of doctor of philosophy and doctor of science, and that the degree of master of arts would be

given only on examination. To candidacy for these higher degrees were to be admitted bachelors of arts of Harvard, and bachelors of arts of other colleges who should satisfy the faculty that they had had a training equal to that given at Harvard. Excellent provision was made for the instruction of graduates, and one fellowship and one scholarship for graduates were established. In 1872 28 graduate students were enrolled; in 1876-7, 61; in 1889-90, 111. The graduate department was organized as a separate school in 1890. In the twenty-five years from 1873 to 1898 the doctorate in science or in philosophy has been conferred on 212 men.

At Cornell university, where actual instruction was begun in 1868, the degree of doctor of philosophy was planned for from the beginning, though at first the requirements were strangely limited. Rapid changes were soon made, however, and in 1871 we find the requirements of two years' resident graduate study, the passing of examinations, and the presentation of a satisfactory dissertation, laid down in the catalog. The graduate courses are thus described in the catalog of 1876: "Post graduate courses of study leading to secondary or advanced degrees have been or will be on application marked out, in the following general departments: Chemistry and physics, ancient classical languages and literature, modern European languages and literatures, oriental languages and literatures, mathematics, natural history, and philosophy and letters." In the same year regulations for the award of the degree of doctor of science were established.

At Princeton "post-graduate" courses are first mentioned in the catalogue for 1877-8, as in operation, with 44 students, in three groups, philology, philosophy and [natural] science. At first only a certificate of work done was given to these students; the degree of master of arts was still given "in course." Courses in natural science, leading to the degree of master of science, were established in 1881; and about the same time new regulations for the master's degree were published, and that of doctor of philosophy was offered.

Johns Hopkins university was organized from the first with chief regard to graduate work; its influence upon older institutions became very marked from the time of its opening in 1876. The University of Michigan first offered the doctor's degree in philosophy in 1874-5. The degree of master of arts ceased to be conferred "in course" in 1877.

At Columbia the master of arts degree was conferred "in course" for the last time in 1880; thereafter it was given only to bachelors of arts of three years' standing, who had pursued for at least one year a course of study under the direction of the faculty of the college, in one or more of five groups: Greek, Latin, English; philosophy, ethics, logic; mathematics, mechanics, astronomy; physics, chemistry, geology; constitutional law, economics, history. Instruction for graduates was begun in the same year. The degree of doctor of philosophy was first awarded in 1884. The regulations for the award of the higher degrees suffered several changes from year to year. In 1890 the entire institution was thoroughly reorganized; the school of philosophy was established; it and the school of political science, existing since 1879, were made "university" faculties, and in 1893 the faculty of pure science was added to them.

At Bryn Mawr college, opened in 1885, graduate instruction was undertaken from the first, as at Johns Hopkins, though the organization of undergraduate work was made relatively more important than at Baltimore. Clark university, from 1887, has never organized undergraduate courses.

The twenty-eight years elapsed since the first doctor of philosophy was created at New Haven, in 1861, have brought about an expansion and development of graduate study that is not less than wonderful. In 1898-9 over 3,600 students, of whom nearly 1,000 were women, were enrolled in some 24 institutions. The whole number who were receiving graduate instruction in the United States was much greater than this; and in 1898, 246 persons received from these institutions the degree of doctor of philosophy.

In this rapid development, from 1860 to 1899, of the doc-

torate as the goal to which the graduate student presses on, must be recognized the working of the impulse and inspiration brought from Germany. The enthusiastic desire, felt by Bancroft in 1820, of transforming the American college into a German university, shows itself again in Michigan and elsewhere a generation later. Between 1870 and 1880 many Americans were returning home from foreign study, and the number of those seeking the universities of the fatherland increased rapidly. What appealed to them most among the advantages there found was the freedom of research, and the abundant encouragement and opportunities extended to the aspiring student. There was little or nothing in the American college organization of 1870 to encourage this spirit, and it is no wonder that each returning Ph. D., or his less fortunate brother whose means or time had not permitted him to acquire this badge of accomplishment, should have proved an apostle of a new dispensation. That many mistakes should be made was inevitable; the first enthusiasm overlooked many of the stubborn facts of American life which refused to be bent into agreement with German standards. It is to the credit of American educators that so many ways have been found of keeping what is good for us in the German system, and bringing it into harmony with a national view of life quite different from that which produced this system. The plan, so often advocated, of turning the colleges into universities at once, could not have succeeded, because the projectors forgot that only the German secondary school system made possible the German university and its methods of work, that the reform must be begun at the bottom as well as at the top, and that the American college was too intimately connected with the American national life to be abolished or summarily turned into a *Gymnasium*. The last ten or fifteen years have brought much greater clearness of vision. The problem to be worked out, a problem whose solution is well begun, is how to make of the college the proper complement of the secondary school. In their gymnasial organization, with its

rigid training under one system for nine years, the Germans have beyond question an educational advantage of incalculable value; but such a system is possible only in a state whose government is sufficiently strong and paternal to impose its will upon the people for generation after generation. We too could have gymnasia if we were willing to pay the price for them. That price, however, would be one against which the personal independence of the American would instantly protest. The maintenance of the rigid control and discipline of the gymnasium is made possible only by a direct interference of the teachers, as government officials, even with what seem to Americans to be pure family matters.¹

Naturally, then, what was adopted from Germany was found to be most available and useful when employed as a supplement to the American college, not as a substitute for it. That this addition to our educational system was in general made in connection with existing institutions has been on the whole a great advantage to us. Great libraries, laboratories and museums, such as are necessary to a university, cannot be created at once, even with adequate endowments. Until the principle of American government is changed it will not be possible to create state institutions exclusively devoted to the highest education; nor, under the political conditions of the United States, is it desirable. The number of men thoroughly competent to organize and administer a great university is very small indeed; the best commercial or political organizer often fails most signally in this field. For this very reason, probably, the experiment has not yet been possible on a scale large enough to afford a real test.

¹ So for instance the domiciliary visits sometimes made by the teachers, to see if the pupils are at work at the hours prescribed for *Hausarbeit*. For an excellent account of the German gymnasia, see Russell, J. E., *German Higher Schools*, N. Y. 1899.

IV QUALIFICATIONS FOR ADMISSION. STUDIES AND DEGREES.
HONORARY DOCTORS OF PHILOSOPHY. AIDS TO STUDY AND
RESEARCH: MUSEUMS, LABORATORIES, LIBRARIES

In general, the possession of a bachelor's degree is requisite for admission to the graduate school of an American university. In the earlier years of the existence of these schools, it was chiefly the degree of bachelor of arts which was demanded. A difficulty soon arose. Many students presented themselves who had had a good training, though without the classics, or at least without Greek, and held bachelors' degrees in philosophy or science. At some institutions these degrees represented distinctly less severe work than the degree of bachelor of arts, at others this discrepancy did not exist. In general, however, it must be said, the first degrees in "philosophy," "letters" or "science" were more easily acquired than that in arts. To ensure the proper preparation of intending students, most graduate faculties or boards of administration reserved and still reserve the right of passing upon the special qualifications of each individual who does not hold a first degree from the institution where he seeks admission as a graduate student. In some universities great liberality—sometimes too great—is shown toward applicants. At Columbia those who hold a baccalaureate degree in arts, letters, philosophy or science, or an engineering degree, or the equivalent of one of these from a foreign institution of learning, are admitted as candidates for the degrees of master of arts and doctor of philosophy; the university faculties protect themselves by requiring that every candidate for a higher degree must present to the dean of each school in which he intends to study evidence that he is qualified for the studies he desires to undertake. A student once admitted to one of the schools, however, unless as a special student, becomes *ipso facto* a candidate for a degree, and is expected to settle at once upon his major and two minor subjects. At other universities admission to a graduate school does not imply

admission to candidacy for a degree, this being granted only later, when the student has shown himself thoroughly qualified for the necessary work. This qualification includes in many institutions the ability to read fluently French and German, sometimes Latin. The plan has been found to work well where it has been in operation, and deserves general adoption. It is followed, *e. g.*, at Harvard, and at the University of Chicago. At the latter institution the names of those who are, and those who are not yet, admitted to candidacy for a degree are printed separately in the catalog.

All the graduate schools, with few if any exceptions, award the degrees of master of arts and doctor of philosophy. At Columbia these are the only ones thus awarded, the degree of master of laws, though classed as a university degree, being given for work done under the faculties of law and political science together. The doctorate is offered at some institutions in two forms, doctor of philosophy and doctor of science; the latter, given for advanced work in natural science, is rarely taken. At Harvard, for instance, while 190 degrees of Ph. D. were granted from 1873 to 1898, but 22 of S. D. were given, the greatest number in any one year being three, and none were awarded in 1874, 1876, 1877, 1880, 1883, 1885, 1888, 1890, 1896, or 1898.

The master's degree has not been reduced to such simplicity. Many institutions still create masters of science, philosophy, letters (or literature), corresponding to the baccalaureate degrees in those subjects.

The requirements to be fulfilled for the doctor's degree show greater uniformity among the different institutions than those for the master's. The minimum period of study anywhere accepted is two years after receiving the bachelor's degree. Where undergraduates are admitted to some of the courses arranged for graduates, this means that three years (as at Columbia), or even four (as at Cornell), may still be passed under the direction of the graduate faculty or committee of graduate instruction by a student who

merely fulfills the minimum requirement of graduate attendance. But even in those institutions where the minimum period is two years the degree is not often obtained in that time; it may indeed be safely said that the minimum of three years' study is practically universal. The Johns Hopkins university, in establishing its regulations for the doctor's degree, adopted the German system of *Hauptfach* and *Nebenfächer*, the "major subject" being that field of research which furnishes the subject for the dissertation demanded, and the "minor subjects" being required to be organically connected with it. Harvard and Yale, on the other hand, do not hold to this system, demanding merely that the amount and kind of work done shall be satisfactory to the controlling board or committee. At Harvard the regulations read as follows: "A candidate for the degree of doctor of philosophy must offer himself for examination in some one of the divisions of the faculty of arts and sciences. The subjects in which the degree may be taken are * * *: philology, philosophy, history, political science, music, mathematics, physics (including chemistry), natural history, American archæology and ethnology. Within his chosen division the candidate must name some special field of study, approved as sufficient by the committee on honors and higher degrees in that division. He is liable to minute examination on the whole of that special field and is also required to prove such acquaintance with the subject-matter of his division in general as the committee in that division shall require." For the doctorate in science two subjects in the range of the mathematical, physical and natural sciences are demanded, in one of which special attainments must be shown. Columbia goes farther perhaps than any other American university in specifying minutely what branches of study may count as subjects in the schools of philosophy, political science and pure science. Concerning the recognition of work done in graduate schools elsewhere great diversity of practice prevails. No university has yet seen fit to accept candidates for the degree who have completed all their residence

elsewhere, as is so freely done in Germany; the feeling is still strong that the institution that bestows a degree upon a candidate must have had that candidate under its direct charge for a considerable time. The practice shows a distrust of other institutions which is far from complimentary to the general state of the university education in America, and is partly explainable from the strong competition for students which, characteristic of most of the colleges, is often seen in the graduate schools as well. It is to be hoped that this spirit will gradually disappear. The sooner all the graduate schools realize that their interests are absolutely identical the better for university education in America. The smallest minimum time of actual residence where the degree is sought that is anywhere prescribed for the doctor's degree is one year. Generally it is the last year of residence that is thus demanded. Wisconsin stipulates that either the last year or the first two years be spent in residence there. At some of the universities there are regulations concerning the minimum number of hours of lectures to be taken; at Columbia, for instance, candidates for either the master's or the doctor's degree are expected to attend lectures for at least four hours a week in the major subject, and two hours a week in each of the minors, and a seminar must be attended in the major subject. At Johns Hopkins each minor subject is expected to be followed for a year, the first minor to about double the extent of the second. Most of the universities, however, leave the graduate student free in this respect, justly regarding the direction and advice of the professor as a better guide than hard and fast regulations. Nearly everywhere a reading knowledge of French and German, and in many institutions a similar knowledge of Latin, are demanded of the candidate. The requirements of a dissertation embodying original research, and of examinations, are enforced at all the prominent institutions. In the management of the examinations the practice of the various institutions differs widely. In many both written and oral examinations must be passed, and often the candi-

date must pass an oral examination at least on his major subject, and defend his dissertation, before the whole faculty—a custom which ought to be made universal. Fifteen at least of the universities granting the doctor's degree require the dissertation, when accepted, to be printed; in most cases where this is done a stated number of copies must be furnished, free of cost to the institution, to its library, for distribution among other institutions at home and abroad.

Concerning the master's degree, as has been said above, much less uniformity prevails. The Ph. D. degree was so distinctively a new departure when first introduced into America that it was easier to establish regulations for it which should be at variance with old-established usage; but the master of arts was as old as the college itself, and a firmly fixed tradition gave it, for many years, as a matter of course, after a certain interval of time, to those bachelors who were willing to pay a moderate amount for the privilege. Only rarely was any evidence of continued study demanded. After the middle of the present century, however, this custom was viewed with increasing disfavor, and one college after another abolished it. Requirements of residence and study were established, or of study elsewhere than at the institution granting the degree, with an examination as a test. But these requirements were made on two different principles. In some places the master's degree was viewed as an advanced baccalaureate, and requirements of certain "courses," covering a certain number of hours of attendance, adopted. Elsewhere it was regarded as a sort of minor doctor's degree, and the requirements arranged accordingly, *i. e.*, attendance for a certain minimum period, without stipulation of the number of hours, and a thesis or essay. Columbia seems to have gone farthest in this respect, demanding work in three subjects, as for the doctor's degree. In all cases, however, under both systems alike, the time spent in residence for the master's degree may count towards the doctorate. The minimum term of residence is everywhere a year,

except that the University of Michigan is satisfied with six months from its own graduates. Clark university and Johns Hopkins do not grant the master's degree separately from the doctorate; at Bryn Mawr it may be given separately only to graduates of that college.

The better and more logical plan seems to be the separation of the master's degree in principle from the doctor's. While both go back to the same beginning, and when first bestowed in European universities meant about the same thing, their courses of development diverged, England holding to the master of arts and Germany substituting for it the doctorate in philosophy, to correspond with that in law and medicine, and everywhere doing away with the baccalaureate, except as transferred to the gymnasia and represented by the *testimonium maturitatis*. It is interesting, and characteristic for the peculiar development of American educational forms, that the two divergent branches of the parent stem should have been brought together again in our universities. There will always be a considerable number of students who wish to continue their work beyond the bachelor's degree, but along the same lines, and do not care to enter upon the detailed research necessary for the doctorate. For these the master's degree, administered on the first plan, is most appropriate. Those, on the other hand, who seek the doctorate are mostly indifferent to the master's degree.

The methods of study and instruction differ but slightly from those in vogue in the German university, and thus far have yielded excellent results. The differences are mainly such as result naturally from the greater burdening of the American professor with routine work, and from the varying conditions of previous training on the part of the students. In general, the "lecture," or *freier Vortrag*, is less common than in Germany, though gradually supplanting the recitation even in the upper classes of the college; in the opinion of the present writer, the lecture is still far from receiving its due development among us. Its value in the exposition

of the fundamental principles of the various sciences is not yet everywhere fully recognized. "Seminar" methods are now very widely used even where the constitution of the class is much less restricted than in the German seminars. The American seminar is of course very variously administered, depending on the ability of those in charge and the preparation of the students. The professors, so far as their other prescribed tasks allow, set the example of individual scientific research. It cannot yet be said, however, that this is made easy for the American professor.

An interesting chapter in the history of American education, and unfortunately one that cannot yet be brought to a close, concerns the fight made against the outrageous practice of awarding the doctorate in philosophy as an honorary degree. Awarded first by Yale in 1860 as strictly a specialist's degree, it has been jealously guarded by the more reputable institutions, while the less scrupulous colleges seized upon it with avidity as a new advertisement for themselves. Several learned societies, following the lead taken by the American philological association in 1881, set themselves vigorously against the abuse, and in 1896 a convention of graduate students held at Baltimore strongly condemned the practice. The sentiment of the enlightened public is gradually being brought to condemn the custom, though the rate of progress suffers considerable variation from year to year. The following table shows the figures for certain years :

NO. OF PH. D. DEGREES GRANTED IN UNITED STATES	1873	1884	1889	1894	1895	1896	1897	1898
On examination	25	28	121	233	234	239	227	304
Honoris causa.....	17	36	50	33	34	27	30	15
Ratio of honorary Ph. D. to Ph. D. on examination...	68%	128%	41%	14%	15%	9 1-2%	13%	5%

With the equipment of laboratories, museums and libraries, indispensable for research, the American universities

are now fairly well, and some of them abundantly, provided. Many of the laboratories are the gift of private individuals; sometimes the buildings only have been thus provided, sometimes the equipment only, sometimes both. The institutions situated in or near large cities have in addition the advantage of the public museums and libraries; thus, to mention but a few instances, Harvard is within easy reach of the Boston museum of fine arts and the Boston public library, besides having under her own control several excellent museums; Columbia is close to the Metropolitan museum of art, the American museum of natural history, and others; the Johns Hopkins students can easily reach the great national collections at Washington, and so on. The western universities are not as yet so highly favored in this respect.

The growth of the university and college libraries in the United States is hardly less than phenomenal. The largest are the following: Harvard, 524,000 vols.; Chicago, 309,000; Yale, 290,000; Columbia, 260,000; Cornell, 211,000; Pennsylvania, 160,000. It must be said, however, that the excellence of the library is not always indicated by its size. The liberal and practical spirit in which American university libraries are administered is very striking; of the cumbersome methods and vexatious restrictions so common in European libraries little is to be found.

V PUBLICATIONS OF AMERICAN UNIVERSITIES

From a number of the universities of the United States issue serial publications of a scientific character, and occasional learned works, written or edited by professors and advanced students of those institutions. Some of the universities issue these at their own expense, the entire publication being under the immediate control and direction of the institution, as at Chicago, others through arrangements made with publishing houses. The following list of the chief publications of six of the leading universities will afford an idea of the activity prevailing in this field:

1 Harvard university—Some departments of study issue periodicals or yearly volumes, embodying the work of instructors and students at the university. Such are :

Harvard Oriental Series. Vols. I-V.

Harvard Studies in Classical Philology. Yearly. Vols. I-X.

Studies and Notes in Philology and Literature. Yearly. Vols. I-VII.

Harvard Historical Studies. Vols. I-VII.

Quarterly Journal of Economics; now in thirteenth year.

Annals of the Observatory of Harvard College. Vols. I-XXXVI.

Contributions from the Cryptogamic Laboratory. Nos. 1-40.

Publications of the Museum of Comparative Zoölogy: Bulletins, vols. I-XXXII; Memoirs, vols. I-XXII.

Contributions from the Zoölogical Laboratory. Nos. 1-86.

Publications of the Peabody Museum of American Archæology and Ethnology: Reports, Nos. 1-31; Papers, Nos. 1-6; Memoirs, Nos. 1-5.

2 Johns Hopkins university—The Johns Hopkins press issues the following, edited by professors of the university :

American Journal of Mathematics. Quarterly. Vols. I-XXI.

American Chemical Journal. Monthly. Vols. I-XXI.

American Journal of Philology. Quarterly. Vols. I-XX.

Studies from the Biological Laboratory.

Studies in History and Politics. Monthly. Vols. I-XVII; also eighteen extra volumes.

Johns Hopkins Hospital Reports. Vols. I-VII.

Contributions to Assyriology, etc. Vols. I-IV.

Memoirs from the Biological Laboratory. Vols. I-IV.

Modern Language Notes. Monthly. Vols. I-XIV.

Journal of Experimental Medicine. Bi-monthly. Vols. I-IV.

American Journal of Insanity. Quarterly.

Reports of the Maryland Geological Survey.

3 University of Pennsylvania—The following are issued under the editorial supervision of the university publications committee. They are issued for the most part at irregular intervals.

Series in Philology, Literature and Archæology.

Series in Philosophy.

Series in Political Economy and Public Law.

Series in Botany.
Series in Zoölogy.
Series in Mathematics.
Series in Hygiene.
Series in Astronomy.

The museums of archæology and palæontology also publish occasional reports.

4 Columbia university — The Columbia university press is a private corporation, the trustees of which must be members of the teaching staff, and its presiding officer the president of the university. Up to the present time it has issued sixteen volumes, mostly by present or former members of the university.

From the university issue the following series of studies and contributions, some few of them through regular publishing channels:

Biological Contributions from C. U.
C. U. Contributions to Philosophy, Psychology and Education.
Contributions from the Electrical Engineering Department of C. U.
Contributions from the Geological Department, the Herbarium, the Mineralogical Department, the Observatory.
Memoirs from the Department of Botany.
Studies from the Analytical and Assay Laboratories, the Department of Pathology.
Studies in History, Economics and Public Law.

The following journals are issued under the direction of members of the faculty:

Bulletin of the American Mathematical Society.
Bulletin of the Torrey Botanical Club.
Educational Review.
Political Science Quarterly.
School of Mines Quarterly.

5 University of Wisconsin — The university issues four series of publications, known as the Bulletins of the University of Wisconsin, under the direction of a committee consisting of the president and several professors.

Series in Economics, Political Science and History. Vols. 1 and 2.

Series in Science. Vols. 1 and 2.

Series in Language and Literature. Vol. 1.

Series in Engineering. Vols. 1 and 2.

6 University of Chicago—The University press forms one of five divisions in the constitution of the university, and is managed by a director appointed by the trustees. The department of publication, one of its parts, issues the following journals, edited by professors of the university :

Journal of Political Economy. Quarterly.

Journal of Geology. Bi-monthly.

Astrophysical Journal. Ten nos. a year.

American Journal of Sociology. Bi-monthly.

Biblical World. Monthly.

American Journal of Semitic Languages and Literature (continuation of: *Hebraica*). Quarterly.

Botanical Gazette. Monthly.

School Review, Ten nos. a year.

American Journal of Theology. Quarterly.

Several series of "Studies" have also appeared. These are :

Contributions to Philosophy. I-IV.

Economic Studies. I-IV.

Studies in Political Science. I-III.

Studies in Classical Philology. I-V.

Germanic Studies. I-III.

English Studies. I.

Physiological Archives. I.

Anthropological Bulletins. I, II.

The press also issues from time to time books, particularly those of scientific value.

VI FELLOWSHIPS AND SCHOLARSHIPS. GIFTS AND ENDOWMENTS FOR UNIVERSITIES, PARTICULARLY FOR RESEARCH

The generosity of private individuals towards education, which in its largest form has made possible the foundation of such institutions as Johns Hopkins, Cornell and Chicago, manifests itself likewise in the humbler guise of gifts and

endowments for special purposes, in the establishment of museums and laboratories, of funds for the maintenance of these or of libraries, in the foundation of scholarships and fellowships intended to aid students of high promise in the prosecution of their studies, or to reward those who have shown conspicuous merit. In general, it may be said that the specifically college part of an institution fares much better than the university or graduate part in these respects. The reasons are not far to seek. Prizes naturally appeal more to the younger students, and are more easily awarded in connection with the definitely arranged work of undergraduate courses; it is harder for undergraduates to support themselves by giving private instruction, and in other ways, than for graduate students; the need of "dormitories" or residence halls, which few colleges can afford to erect from their own funds, is more pressing for undergraduates; and, finally, of the college-trained men, from whom the larger number of endowments come (though to this there are many striking exceptions), not a very large proportion have had actual experience of graduate work, and do not so readily recognize the importance of it, and their loyalty to their *alma matres* is accordingly concentrated chiefly upon the collegiate rather than the university part, where the latter exists.

Scholarships and fellowships are much more bountifully supplied, for graduates as well as undergraduates, in the universities of private foundation than in the state universities. In the latter tuition is either free or considerably cheaper than in the former, and the need for aid to the student correspondingly less. Harvard, Yale, Columbia, Cornell, Princeton, Pennsylvania, Johns Hopkins, Bryn Mawr, and Chicago are particularly well supplied in this respect; Chicago has nearly eighty fellowships to award each year, Columbia and Pennsylvania each over thirty. The amount paid by a fellowship to the holder varies from \$120 (as some at Chicago) to \$800; the most usual figure is about \$500. The value of a fellowship may, however, be decreased by the requirement, made at some universities, that all tuition

fees must be paid by the holders ; Columbia is perhaps the most liberal in exempting the holders of fellowships from such payments. In some universities certain duties in the way of instruction, etc., are expected of the fellows.

The differences between scholarships and fellowships are in general briefly these : The fellowships are awarded only to graduates ; a scholarship may be for graduates or for undergraduates ; the scholarships are awarded generally for a single year only, and without possibility of renewal, while some fellowships run for several years, and the annual ones may be reassigned once or twice to the same person.

The fellowship system was first extensively used by Johns Hopkins, and has rapidly become a striking feature of American university organization. The object sought has been in most cases completely attained, viz., to bring together a body of picked men or women, who display high ability and good previous training for the work of research, and spare them the necessity, so trying to earnest students, of earning their living while carrying on their advanced studies. Some few of the fellowships are so organized as to permit part or the whole of the time over which they extend to be spent in study abroad ; Bryn Mawr in particular offers three European fellowships, and for 1898-9 Harvard made twelve appointments to non-resident fellowships.

Some of these fellowships are paid out of the general funds of the university awarding them ; others are maintained by the proceeds of private gifts and endowments. At some institutions the fellowships are assigned permanently to certain departments ; at others the majority of them are given to the most promising candidates, little regard being had to an even distribution among departments. The fellowships and scholarships founded by individuals are generally attached to some one department. Among the notable benefactions of this sort are : At Harvard, the Kirkland fellowship, founded by Bancroft in 1871 ; the Walker fellowship (1881), generally given to a student of ethics and philosophy ; the John Tyndall fellowship (1885), in physics ;

the Robert Treat Paine fellowship of social science (1887); the Hemenway fellowship of American archæology and ethnology (1891). At Columbia, the Tyndall fellowship, similar to that at Harvard, both of them, with others elsewhere, having been founded by Professor Tyndall; the Barnard fellowship, in physical science, established by will of the late President Barnard; the Henry Drisler fellowship in classical philology; the Mosenthal fellowship in music; the Schiff fellowship in political science. The University of Pennsylvania possesses a permanent fund of \$500,000, the gift of Provost Harrison, the income of which is partly applied to nineteen fellowships, fourteen of which are permanently assigned to particular departments. This fund also supplies five remarkable *senior fellowships*, yielding \$800 a year each, open only to doctors of philosophy of the university. Johns Hopkins awards the Bruce fellowship in biological science. Cornell offers, among others, two President White fellowships, one in modern history and one in political and social science, and three Susan Linn Sage fellowships in philosophy.

Several fellowships at the American schools of classical studies at Athens and in Rome are also offered to graduates of American universities; of these the Hoppin fellowship at Athens, and the fellowship in Christian archæology at the school in Rome, are private foundations.

There is, perhaps, no prominent institution in the United States devoted to the higher education which does not possess some practical demonstration of the determination of individuals to further the work, not only of instruction, but of research as well. The greater gifts result in museums, laboratories or libraries; such are the Semitic museum and the Fogg art museum at Cambridge, the Avery architectural library at Columbia, the White historical library at Cornell, and many more. The magnificent library building at Columbia is the gift of her president; a great fund, presented by the Duc de Loubat, will one day become available as a library fund at Columbia; the generosity of several gradu-

ates of Yale brought to her the admirable classical library of Ernst Curtius, as the historical library of Bluntschli was brought to Baltimore; in Messrs. Stanford and Rockefeller and Mrs. Hearst the Leland Stanford, Jr., university, the University of Chicago and the University of California have found more than princely benefactors; the gifts of the patrons of Princeton, Cornell, Chicago are almost without number. In the Drisler classical fund Columbia possesses a means of supply for the purchase of books and illustrations, such as casts and photographs, for the better prosecution of the work in Latin and Greek. The Harvard astronomical observatory, among many splendid gifts, received in 1885 one of more than a quarter of a million dollars, the entire fortune of the late Robert Treat Paine, for purposes of astronomical research. Owing to the comparative lack of great fortunes in the southern states, the universities there have not fared so well; but the spirit is abroad there too, and the constant increase of wealth in those states is certain to be followed by the liberal extension of aid to the universities.

A very remarkable and encouraging feature of the generosity manifested in the United States towards institutions of learning is the fact that so many of the gifts, among them several of the largest, have come from men who had not enjoyed collegiate education. A case in point is the munificence of Mr. Fayerweather, a merchant of New York, who bequeathed in 1891 more than four millions of dollars to various colleges and universities, wisely refraining from adding, as many public spirited men of less judgment have done, to the superfluity of institutions already existing, and with equal wisdom leaving to the recipients of the funds the determination of the purposes for which the funds should be used. It is truly encouraging for the future of education in America that so many of her millionaires are willing to give freely of the fortunes that they have accumulated, and that those who give the most should set the example of entrusting the application of the funds to those who best understand the needs to be met.

VII SOME PRESENT UNIVERSITY PROBLEMS

*Da muss sich manches Rätsel lösen,
Doch manches Rätsel knüpft sich auch.*
— Faust.

When the problems of education are all solved, education itself will be dead, and the need of it greater than ever. The entire range of education in the United States has been in a state of rapid transition for many years already, and nowhere have the changes been more constant than in the domain of college and university education. From the establishment of graduate courses at Yale in 1847 until the present day, probably no year has passed without seeing some new experiment tried, some old institution reorganized or new one founded. If the new institutions have often shown too little willingness to profit by the experience of others, or to adopt the ways and means of other lands, it must be remembered that the educational problem has been but one of many with which the leaders of thought in this country have been confronted, and that in the attempt to conform institutions to the spirit of the country it has been necessary first to discover, often at great pains and heavy cost to the experimenter, what that spirit was.

Naturally the most important question has been and still is that of organization. It has doubtless become apparent from the foregoing description that no two universities are just alike, and that the differences do not by any means concern unimportant points. Every possible variety of organization and administration seems to the observer — especially the foreign observer — to have been tried, except that of a consistent and rigid adherence to forms sanctioned by centuries of permanence in Europe.

The vacillation has come from uncertainty as to the true purposes of the university. In Europe these purposes were long ago settled: the university exists to train servants of the state, or, as prevailing in England, to train up a race of gentlemen who shall never forget the obligations of their

caste. It is the glory of Germany that she has seen more clearly than other nations how truly the highest scientific training is none too good for her public servants.

The wholly different conditions prevailing in the United States have been reflected in the organization of our universities and colleges. There is no state religion, and the national constitution forbids the patronage or proscription of any sect; consequently the theological faculty, originally the most important in the universities of western and northern Europe, found no state recognition. The practice of the law was subject to few restrictions, and indeed in at least one state is still open to every citizen of mature age, so that the schools of law, when they began at all, grew up mostly on a basis of private organization, with purely practical training as their object, and often underbid one another in their eagerness for students. With such exceptions as the nature of the profession brings with it, the regulation of the study and practice of medicine went the same course, proprietary schools being the most frequent form of organization for instruction in the healing art. As for the faculty of arts or philosophy, which, originally preparatory for one of the others, had in Germany been put on a par with them and made the doorway to the new profession of teaching in the state schools, its ground was partially covered by the curricula of the best colleges. The character of these colleges however resembled more nearly that of the German philosophical faculty of two centuries ago. The state systems of education did not at first include more than elementary schools, so that there was no great incentive for prescribing a college course for those persons who wished to teach in them; nor would such a regulation have been popular in intensely democratic communities, or, in the poverty of many of the states, easily possible of fulfillment. Under these circumstances the European conception of a university was lost; and when it began to be regained, different systems, imperfect and incongruous it is true, but still in many ways useful, had grown up to fill the needs which are

supplied in Europe by the university. Other needs had made themselves felt in America even more keenly: the needs incident to the rapid settling and exploitation of a new country, where vast distances and a phenomenal growth of population made imperative some provision for training in the technical professions and mechanical arts. It is not strange, then, though it has been unfortunate for the country at large, that the last need to be recognized in education has been the need of thorough training in the humanities and in pure science, in what has been admirably well called¹ "disinterested scientific thinking, as distinguished from technical or commercial science."

American educators, then, are not yet at one as regards the true function of the university. In general, two opposing views are chiefly held. The purpose of the Leland Stanford, Jr., university is declared to be: To fit young persons for success in life. An admirable purpose, no doubt, but one which the university must share in common with many other institutions. Of a like breadth of conception is the avowed purpose of Ezra Cornell: I would found an institution where any person may find instruction in any study. The brilliant history of Cornell university is chiefly due to the wisdom of the men who have seen what limitations should be put upon this great plan. This view of the true function of a university is chiefly prevalent in the west; one sometimes hears it said that the western universities exist solely for the sake of the students, while some of the eastern universities seem to think that the students exist chiefly for the sake of the universities or of science at large. The universities of private foundation are proceeding more and more on the assumption that their function is to train, in their graduate departments or faculties of philosophy, specialists, as teachers, and to a less extent as investigators; those which have raised some of their professional schools to

¹ By Professor West of Princeton, in the *Educational Review* for October, 1899. So too Professor Coulter (*Ibid.*, IV [1892] 366 ff): "The university is in the largest sense a place for the emancipation of thought."

true university rank by refusing admission to all who have not received a non-professional degree aim not merely to instruct the future physicians and lawyers in the technique of their professions, but to give them true scientific insight and philosophic grasp.

Until there is agreement as to the true function of a university, there cannot be agreement as to their organization and administration. Whoever holds to the Stanford idea will wish to see all departments of instruction put on precisely the same plane; whoever believes that scientific research is the highest and noblest aim of education will demand for the university an organization which shall emphasize this, leaving to other institutions the teaching which is entirely practical.

As a whole, American universities seem to be trying to do too many things at once, generally with an altogether inadequate equipment of instructors, and with an insufficient endowment. Each university aims to cover the entire field of instruction; the result is that the professors, who are, except in the professional faculties, almost always college instructors as well, are cruelly overburdened with teaching and administrative duties, with the inevitable result that few of them can carry on much research. The organization of most of our universities is too complicated. Many professors have to attend two, three, or even four faculty meetings each month, and serve on committees without number; some of them are even expected to do purely clerical work.

Perhaps the most important of American university problems at present, as bearing directly upon the necessary organization and determining it, is the relation of university or graduate work to undergraduate work and to professional training.

With the very liberal regulation, often lack of regulation, exercised by the state governments over the practice of the professions of law and medicine, the number of practitioners has inevitably become excessively great. The need of stricter control has been seen, and many states have increased

the requirements for admission to practice. That any of the states will require a complete collegiate education as a preliminary to admission to practice is a very remote possibility. It rests with the universities to raise the plane of their professional schools so that only the fittest will survive. Experience has shown that raising the standard of an institution is surely followed in a few years by an increase in numbers as well as in the quality of students entering. A beginning has already been made, as indicated above, for the professional schools of law and medicine. As for the technical schools, most of them, whether connected with the universities or not, have been too ready to admit students on very slight requirements. Perhaps in time the best of these will see that a good preliminary training ought to be demanded of their students, and so put themselves also on a university level.

Enough has been said, it is hoped, to show that there is little chance of re-establishing in any American university the traditional four faculties, unaccompanied by any other departments of instruction. If means were abundant, it would perhaps be advisable to separate entirely from the universities the technical schools, except such as should be willing to demand a preliminary degree for admission and to develop more fully the theoretical and research side of their teaching. At present undue prominence is given to the technical schools in many institutions, largely because they are the best paying parts, and the tone of the whole institution, as an organization that should exist as largely for the advancement of research as for any other cause, is distinctly lowered thereby.

The graduate school, or faculty of philosophy, bears closer relations with the collegiate course than can be borne by any professional faculty. The overburdening of professors alluded to above might be remedied by the appointment, where endowments would allow, of professors exclusively for graduate work on the lines of the faculty of philosophy, who should be able to engage in extended research work

with advanced students. Hitherto no institution has been in a position to do this in any large degree. Nor has it been possible to try on a really instructive scale the experiment of a university without college or technical schools. Whether such a university could properly maintain a faculty of theology, it is hard to say. The Union theological seminary in New York, while under Presbyterian management, is in many respects a real university faculty, and the same may be said of some few others. The relations between Columbia and the Union seminary have become close, with the good result that many students of the latter attend courses at Columbia under the faculties of political science and philosophy, and are eligible for Columbia degrees.

Concerning the precise relation to be borne by the graduate work to that of the college, no general agreement has yet been reached. Even where the two are carefully separated, no such great dissimilarity in methods exists as prevails in Germany between the gymnasium and the university. Where, as at Harvard, the lines of demarcation are partly obliterated, the change from one method to another is very gradual. Johns Hopkins aims above all at producing specialists, and even her college courses are largely shaped to this end. The results certainly justify her policy.

The preparation which the candidates for admission to the graduate schools bring with them is naturally very varied. For many kinds of advanced work, the general training given in the college is not enough; so that the student, in order not to lose much valuable time afterward, has to begin his special studies before receiving his first degree. This is encouraged by the system in vogue at Columbia, especially in the case of students looking forward to medicine or the law. A tendency to over-early specialization is showing itself in many places; the students are naturally anxious to begin the active duties of life as soon as possible, and are unwilling to postpone the acquirement of the professional degree until the 25th or 26th year of their age. A remedy for this has been sought in several directions, but none of

the plans tried has been successful enough to prevail over the others. The trouble seems to lie largely in the loss of time during the earlier school years. The pupils are not taken in hand early enough, nor do they receive severe enough training. With the improvement in organization and methods which is everywhere noticeable, it ought to be possible after a few years to send young men and women to college at sixteen as well prepared as they are now at seventeen or eighteen. With this done, the college course might well be shortened to three years.

It may be asked, what of the *Lehrfreiheit* and *Lernfreiheit*, the freedom for teacher and learner, as they are claimed for the universities of Germany, in those of America? As for the first, the American university professor has little cause for complaint; whatever may have been the case twenty-five years ago, he may now teach what he likes nearly everywhere, though now and then the regents of a state university, or the religious body controlling a divinity school, raise noisy protest. In one respect there is yet much room for improvement: as yet no serious effort has been made to introduce one of the most valuable features of the German university system, the system of *Privatdozenten*. It is not yet possible, any more than it was for Bancroft in 1821, for a young man of ability to secure the right of lecturing at a university by merely proving that he is competent to do it. The introduction of this custom has been several times attempted, but so far with quite insignificant results.

As for the *Lernfreiheit*, that too has become naturalized among us; even the undergraduate enjoys a large measure of it, largest in those colleges where the elective system has taken firm root. One development of it, the migration of students from one university to another without loss of standing, is still unsatisfactory. The custom is highly desirable, and is steadily gaining ground in America; it is much commoner from the colleges to the purely professional schools, students of law and medicine naturally seeking the large cities; the chief obstacles to its adoption are

the differences between the various universities in the matter of organization and of requirements for degrees, and the close connection between college and university which lead the college graduate in many instances to remain for graduate work where he has taken his bachelor's degree, out of pure attachment to his alma mater. According to a writer in the *Educational Review*,¹ in 1892-3 at Harvard 119 out of 206 graduate students, or nearly 58 per cent, had received degrees at other institutions; at Johns Hopkins 201 out of 270, or 74 per cent; at Yale 59 out of 125, or 47 per cent; at Cornell 119 out of 182, or 65 per cent; at Columbia (faculties of philosophy and political science) 109 out of 212, or 51 per cent; total of these five, 607 out of 995, or 61 per cent. In 1898-9, however, of the graduate students registered in the graduate school at Harvard, only 39 per cent had received their degrees elsewhere; at Yale only 43 per cent.

It is interesting to observe how rapidly the spirit of independence with responsibility is developing among the graduate students. At twenty-two or more institutions which maintain graduate schools the students in these have formed themselves into associations for the furtherance of their mutual interests, and these clubs have formed a national federation which holds annual meetings, where papers are read, and questions affecting the whole range of graduate work are discussed. The interest shown in these proceedings, and the intelligent spirit in which many important questions are approached, make these associations into a most valuable adjunct to the work of the graduate schools. At the fourth annual convention, held at Cambridge, Mass., in December, 1898, addresses were delivered by President Eliot and Professor J. W. White, of Harvard, and papers were read, followed by animated discussion, on the following topics: The migration of students; the regulations concerning major and minor subjects; specialized scholarship vs. preparation for teaching, as a basis for graduate study; the mas-

¹ Gross, Chas., *E. R.* VII, 26 ff.

ter's degree ; graduate studies in European universities ; the regulation of graduate to undergraduate courses. The federation of graduate clubs also carries on a determined opposition to the practice of conferring the Ph. D. *honoris causa*.

A project vigorously advocated by many eminent American educators is the foundation of a national university for the United States, to be situated at Washington, to be controlled by a board of regents under the chairmanship of the president of the United States, and to be constituted on the true university basis of admitting to any of its schools only those who have received the preliminary training shown by the possession of a bachelor's degree. The plan is an alluring one from some points of view. The chief difficulty would seem to be in the matter of endowment. To add another institution of learning to those that swarm in the United States, unless the new comer should at once outrank them all in the magnitude and completeness of its equipment, and unless its rise should imply the setting of a number of the minor lights, would be a very doubtful service to the cause of university education. So far no endowments at all comparable with those of half-a-dozen of the universities already existing have appeared ; and it is extremely doubtful whether congress could be depended upon to give the institution the thoroughly adequate support without which it must remain at best one additional "torso of a university."

NOTE: Since the above lines were written, a large and representative committee appointed by the National Educational Association to consider the question has reported against the establishment of such a national university.

APPENDIX A

Some statistics of graduate schools in the United States

The peculiarly complicated and varying organization of the American college-university makes it impracticable to draw up satisfactory tables of statistics on such simple lines as would suffice if the universities of Germany, for instance, were to be thus treated. Only such figures are given here as suffice to show the rapid increase in the numbers of graduate, non-professional students during the last twenty-eight years, and the attendance at the best known institutions in 1898-99 :

I

Number of graduate students (excluding professional schools) 1871-87

1871-72	198	1880-81	460
1874-75	369	1883-84	778
1877-78	414	1886-87	1 237

II

*Attendance of graduate students (exclusive of professional schools)
1889-97*

1889-90.....	1 998	graduate students at 114 institutions.		
1891-92.....	2 900	"	"	" 121
1893-94.....	3 026	"	"	" 135
1895-96.....	3 756	"	"	" 122
1896-97.....	4 392	"	"	" 146

NOTE: It should be borne in mind that (except for 1889-90) no account is here taken of non-resident graduate students, and that an overwhelming majority of graduate students is to be found in attendance at the 23 institutions mentioned in Table III. A very great number of institutions report less than half-a-dozen graduate students.

III

*Statistics of the 23 most prominent institutions reporting graduate students, 1898-9*¹

	Instructors giving graduate instruction	GRADUATE STUDENTS (EXCLUDING PROFESSIONAL SCHOOLS)			Remarks
		Men	Women	Total	
1. Brown university.....	36	30	39	69	Women only
2. Bryn Mawr college.....	25	0	61	61	
3. University of California.....	40	101	90	191	
4. University of Chicago....	130	581	276	857	
5. Clark university.....	10	48	0	48	Women not admitted
6. Columbia university (including Barnard college).....	95	260	82	342	Women admitted thro' Barnard
7. Columbian university (Washington, D. C.).....	26	59	9	68	Women admitted to some courses and only thro' Radcliffe; degree of A. M. given by Radcliffe, Ph. D., not given to women
8. Cornell university.....	328 ²	109 ²	33 ²	142 ²	
9. Harvard university.....	130	329	0	329	
10. Johns Hopkins university.....	64	210	0	210	
11. Leland Stanford, Jr., university.....	32	58	39	97	Women not admitted
12. University of Michigan.....	45	49	17	66	
13. University of Minnesota.....	35	104	52	156	
14. University of Missouri.....	18	18	7	25	
15. New York university.....	27	124	35	159	Women not admitted
16. University of Pennsylvania.....	55	124	34	158	
17. Princeton university.....	37	128	0	128	
18. Radcliffe college (closely connected with Harvard).....	57	0	58	58	
19. Vanderbilt university.....	4	31	6	37	Women only
20. Wellesley college.....	47	0	27	27	Women only; Ph. D. not given
21. Western Reserve university.....	31	16	12	28	
22. University of Wisconsin.....	47	102	26	128	
23. Yale university.....	112	241	42	283	

¹ The figures are taken (except for Cornell) from the "Graduate Handbook" for 1899.

² Including professional schools.

APPENDIX B

Brief bibliography

The chief source of information concerning all educational matters in the United States is the admirable series of reports of the commissioner of education, issued from the United States bureau of education, Washington, D. C. These are issued for each academic year (*i. e.*, September-June), generally within two years after the close of the academic year for which the report is drawn up. The last issued to date (October, 1899) is the report for 1896-7. These contain not only exhaustive statistics, but also reviews of the educational progress of the year, and valuable articles by various writers on educational questions at home and abroad.

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Eliot, C. W. Educational Reform. Essays and addresses. N. Y., 1898.

Ladd, G. T. Essays on the Higher Education. N. Y., 1899.

For the history and development of the individual universities the "annual catalogues" or "registers" published by the institutions themselves often give valuable material. In some of the universities it is the custom to publish the "annual reports" of the president or chancellor; these are of great importance for an understanding of the policy of the university in question. Harvard, Columbia, Johns Hopkins and others publish such reports—an example worthy of imitation by every large institution of learning.

The Federation of graduate clubs has published several small volumes of great interest. These at first gave merely the courses offered to graduate students at the most prominent institutions; but the Graduate handbook for 1899 (printed for the federation by Lippincott, 1899—unfortunately not in the market) contains the proceedings of the meeting at Cambridge alluded to on p. 62.

In the successive volumes of the Educational review (N. Y., 1891—) will be found many valuable articles on a wide range of topics connected with American university education, *e. g.*: Davis, H., Limitations of state universities, I, 426 ff. Butler, N. M., On permitting students to take studies in professional schools while pursuing a regular undergraduate course, III, 54 ff. Jordan, D. S., The policy of the Stanford university, IV, 1 ff; The educational ideas of Leland Stanford, VI, 136 ff. Hyde, W. D., Organization of American education, IV, 209 ff. Coulter, J. M., The university

spirit, IV, 366 ff. Low, Seth, Higher education in the U. S., V, 1 ff. von Holst, H. E., The need of universities in the U. S. (the famous Chicago address), V, 105 ff. Gross, Chas., Colleges and universities in the U. S., VII, 26 ff. Santayana, G., Spirit and ideals of Harvard univ., VII, 313 ff. Taylor, J. M., Graduate work in the college, VII, 62 ff. Hinsdale, B. A., Spirit and ideals of the University of Michigan, XI, 356 ff., 476 ff. Baird, W., The University of Virginia, XII, 417 ff. Draper, A. S., State universities of the middle west, XI, 313 ff. Edgren, H., American graduate schools, XV, 285. *Anon.*, The status of the American professor, XVI, 417 ff. In vol. XVI, pp. 503 ff., is reproduced an interesting article published in the London Spectator of Feb. 12, 1898, entitled, What is a university?

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